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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/408,149	09/29/1999	BHIMSEN BHANJOIS	07575/034001	3652

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EXAMINER

ALI, SYED J

ART UNIT	PAPER NUMBER
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2127

DATE MAILED: 01/31/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/408,149

Applicant(s)

BHANJOIS ET AL.

Examiner

Syed J Ali

Art Unit

2127

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-33 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-33 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on ____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). ____
- 2) ☒ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 2. 6) ☐ Other:

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1, 5, 9-11, 15, 19-21, 25, and 29-31 are rejected under 35 U.S.C. 102(b) as being anticipated by Fitch et al. (USPN 5,526,521) (hereinafter Fitch).

As per claim 1, Fitch discloses an operating system, comprising:

a non-preemptive microkernel executing one or more processes in accordance with a predetermined priority (col. 4 lines 43-50, "One embodiment of a method/system for managing context scheduling pursuant to the present invention is...with a nonpreemptive scheduling environment", col. 3 lines 3-15, "If the ready to run queue contains one or more control contexts, then the scheduling algorithm(s) is(are) employed to determine priority", and wherein the Background Art relates that the invention is directed to a parallel microkernel environment); and

one or more kernels adapted to be executed as one or more processes by the nonpreemptive microkernel (col. 1 lines 41-54, "Control contexts are given different names such as 'threads', 'processes', or 'tasks' depending upon the properties of the context and the naming conventions of the kernel", col. 1 line 55 – col. 2 line 4, "In a nonpreemptive parallel

Art Unit: 2127

microkernel, an application programmer controls context scheduling”, wherein threads, processes, and tasks are all terms used to refer to a kernel, and Fitch shows how a parallel microkernel controls the scheduling of these kernels).

As per claim 5, Fitch discloses the operating system of claim 1, wherein each process has its own stack. This is an inherent feature of processes in an operating system, as each process has associated with it an identifier, variables, and any other associated data. Therefore, when a process is created, a certain amount of memory and resources are allocated to it, and comprise the stack associated with that process. This is well known in the art.

As per claim 9, Fitch discloses the operating system of claim 1, wherein the processes never terminate (col. 4 lines 51-60, “an initial inquiry is made into whether the executing context is voluntarily yielding”, wherein the operating system in question concerns a nonpreemptive operating system, thus control of a process must yield voluntarily and are not terminated).

As per claim 10, Fitch discloses the operating system of claim 1, wherein one of the kernels is a microkernel (col. 1 lines 41-54, wherein based upon what function the process is meant to perform, the kernel may be called any one of a task, process, thread, kernel, or microkernel).

As per claims 11, 15, 19-20, 21, 25, and 29-30, they are rejected for similar reasons as stated above.

As per claim 31, Fitch discloses a computer, comprising:

an interconnect bus ;

one or more processors coupled to the interconnect bus and adapted to be configured for server specific functionalities including network processing, file processing, storage processing and application processing;

a configuration processor coupled to the interconnect bus and to the processors, the configuration processor dynamically assigning processor functionalities upon request; and

one or more data storage devices coupled to the processors and managed by a file system.

These are typical components of any computer system that is intended to run as a server. As the method of Fitch applies to a great number of different types of computer systems, including both preemptive and nonpreemptive, it could readily be applied to a server environment as well. Thus, the limitations therein do not comprise an improvement over the art. Further, the additional limitations are covered as discussed for claim 1.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Art Unit: 2127

4. Claims 2-4, 6-8, 12-14, 16-18, 22-24, 26-28, and 32-33 rejected under 35 U.S.C. 103(a) as being unpatentable over Fitch in view of Magee et al. (USPN 5,771,383) (hereinafter Magee).

As per claim 2, Magee discloses the operating system of claim 1, wherein one of the kernels execute an operating system as a dependent process (col. 6 line 66 – col. 7 line 2, “the microkernel 120 and personality-neutral services 140 run multiple operating system personalities”, wherein the microkernel is well known in the art to execute processes or kernels, and the method of Magee is designed to be able to implement several operating systems).

Further, the method of Magee is concerned with a preemptive operating system, such as Unix. The method of Fitch that concerns nonpreemptive microkernels, as claimed is disclosed by Fitch to be easily adaptable to a preemptive environment (col. 3 lines 1-3). Therefore, it would have been obvious to one of ordinary skill in the art to use the process scheduling algorithm of Fitch in conjunction with the microkernel of Magee since it would allow nonpreemptive scheduling to be adapted to a preemptive environment, thus allowing for greater capabilities for such applications as real-time graphics and audio processing. This paragraph hereinafter serves the purpose of the motivation for combining Magee and Fitch.

As per claim 3, Magee discloses the operating system of claim 2, wherein the operating system is a time-sliced operating system (col. 2 line 54 – col. 3 line 23, “In preemptive multi-tasking, the operating system parcels out CPU time slices to each program”).

As per claim 4, Magee does not specifically disclose the operating system of claim 2, wherein the operating system is Unix. However, the method of Magee is intended to apply to an operating system that was developed and based in the Unix environment (col. 7 lines 27-32, "An objective of the invention is to provide an operating system that behaves like a traditional operating system such as Unix"). Therefore, it would have been obvious to one of ordinary skill in the art to apply the method to the Unix operating system since the functionality is the same between the platform in the disclosure, Mach, and Unix.

As per claim 6, Magee discloses the operating system of claim 1, wherein the processes communicate using one or more messages (col. 21 lines 55-62, "a microkernel task interacts with its environment purely by sending messages and receiving replies").

As per claim 7, Magee discloses the operating system of claim 1, wherein each process has a unique process identifier (PID) (col. 15 lines 52-59, "All tasks are tagged with a security token, an identifier that is opaque from the kernel's point of view. It encodes the identity and other security attributes of the task").

As per claim 8, Magee discloses the operating system of claim 7, further comprising a mailbox coupled to a plurality of processes to service messages sent to a single PID (col. 10 line 55 – col. 11 line 15, "Only one task can hold the receive right for a port...Multiple tasks can hold send rights to the port", col. 21 lines 55-62, "a microkernel tasks interacts with its environment purely by sending messages and receiving replies. These messages are sent using ports,"

Art Unit: 2127

wherein the method of Magee clearly implements the idea of a mailbox to facilitate inter-process communication, with many processes able to send messages to a single process based on its identifier. Further, the mailbox being claimed and the port in Magee serve the same purpose, and are thus not patentably distinct.)

As per claims 12-14, 16-18, 22-24, 26-28, and 32, they are rejected for similar reasons as stated above.

As per claim 33, Magee discloses the computer of claim 31, wherein the microkernel executes a network switch operating system as a dependent process (col. 6 line 66 – col. 7 line 2, “the microkernel 120 and personality-neutral services 140 run multiple operating system personalities”, wherein the microkernel is well known in the art to execute processes or kernels, and the method of Magee is designed to be able to implement several operating systems, including that of a network switch).

Conclusion


The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Art Unit: 2127

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Syed J Ali whose telephone number is (703) 305-8106. The examiner can normally be reached on Mon-Fri 8-5:30, 1st Friday off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John A Follansbee can be reached on (703) 305-8498. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 746-7239 for regular communications and (703) 746-7238 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 305-3900.


Syed Ali
January 27, 2003


MAJID BANANKHAH
PRIMARY EXAMINER